

Table 3-8c
Development of Risk-Based Concentrations for Non-Tidal Wetland Sediment
Mallard - Breeding
Investigation Area H1 Feasibility Study
Mare Island, Vallejo, California

$$RBC_{\text{sediment}} = BW \times TRV \times HQ / [(IR_{\text{prey1}} \times BAF_1) + (IR_{\text{prey2}} \times BAF_2) + IR_{\text{sediment}}] \times SUF]$$

COEC ^a	BAF ^b		TRV (mg/kg BW-day)		RBC- Sediment (mg/kg)	
	Wetland Plant Tissue	Aquatic Invertebrate Tissue	Low	High	TRV-Low	TRV-High
Inorganics						
Aluminum	7.56E-03	1.93E-01	109.7	1,097	15597	155975
Antimony	2.27E-01	2.32E-01	NTV	NTV	--	--
Arsenic	1.15E-01	1.92E-01	5.5	22	682	2730
Barium	7.87E-02	1.50E+00	20.8	41.7	452	905
Cadmium	1.40E+00	2.15E-01	0.08	10.4	3.8	488
Chromium	--	5.53E-01	2.66	2.78	151.5	158.3
Copper	5.68E-02	6.67E-01	2.3	52.3	107	2438
Lead	7.51E-03	5.07E-02	0.014	8.75	4.9	3062
Manganese	4.89E-01	5.29E+00	77.6	776	480	4800
Mercury	--	6.96E-01	0.039	0.18	1.79	8.27
Nickel	1.39E-02	3.65E-01	1.38	56.3	114	4636
Selenium	--	--	0.23	0.93	178	719
Tin	1.55E+00	--	6.8	16.9	412	1023
Vanadium	2.20E-02	2.96E-02	11.4	114	4795	47952
Zinc	8.47E-02	1.51E+00	17.2	172	369	3694
Organics						
PCBs	1.09E-01	1.16E+01	0.09	1.27	0.26	3.7
Anthracene	1.89E+00	--	NTV	NTV	--	--
Benzo(a)anthracene	--	--	NTV	NTV	--	--
Benzo(a)pyrene	--	--	0.001	0.01	0.77	7.7
Benzo(b)fluoranthene	--	--	NTV	NTV	--	--
Benzo(ghi)perylene	--	--	NTV	NTV	--	--
Benzo(a)fluoranthene	--	--	NTV	NTV	--	--
Chrysene	--	--	NTV	NTV	--	--
Fluoranthene	1.17E+00	--	NTV	NTV	--	--
Indeno(1,2,3cd)pyrene	--	--	NTV	NTV	--	--
Phenanthrene	1.64E+00	2.51E+00	NTV	NTV	--	--
Pyrene	--	--	NTV	NTV	--	--

Table 3-8c
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Exposure Assumptions and Equation:^c

	Value	Units	
IRprey(dry wt.) =	0.092	kg/day (dry weight)	-- = Not available
IRplant(dry wt. ^f) =	0.0229	kg/day (dry weight)	NTV = No toxicity value
IRinvertebrate(dry wt.) ^f =	0.0688	kg/day (dry weight)	
IRsoil (dry wt.) ^d =	0.00303	kg-day (dry weight)	
Site Use Factor ^e =	40%	percent	
Body Weight =	0.9361	kg	
Hazard Quotient (HQ) =	1		

Notes:

- a - Constituent of ecological concern.
- b - Dry-weight basis wetland plant BAFs and dry weight basis aquatic invertebrate BAFs presented in Table 3-6b.
- c - Exposure parameters used to calculate risk are discussed in detail in the BERA.
- d - Ingestion rate of sediment based on 3.3 percent of the prey ingestion rate (dry weight); based on mallard (Beyer et al. 1994).
- e - Site use factor was based on a 40% use of the site for the mallards foraging range during rearing.
- f - Based on dietary composition of 25% plant and 75% invertebrates.